

Draft version of a paper that is forthcoming in Australasian Philosophical Review

## **Minding Nature: Gallagher and the Relevance of Phenomenology to Cognitive Science**

**María Jimena Clavel Vázquez and Michael Wheeler**

María Jimena Clavel Vázquez  
University of Stirling and University of St. Andrews

Michael Wheeler  
University of Stirling

María Jimena Clavel Vázquez's work was supported by Mexico's National Council of Science and Technology (Consejo Nacional de Ciencia y Tecnología, CONACYT) under PhD scholarship 295962/440722.

### **Abstract**

In his paper 'Rethinking Nature: Phenomenology and a Non-Reductionist Cognitive Science', Shaun Gallagher sets out to overcome resistance to the idea that phenomenology is relevant to cognitive science. He argues that the relevance in question may be secured if we rethink the concept of nature. This transformed concept of nature, which is to be distinguished from the classic scientific conception of nature in that it embraces irreducible subjectivity, is, according to Gallagher, already at work in some contemporary enactive phenomenological approaches to cognitive science. Following a brief summary of the main points of Gallagher's argument, we argue that this rethinking of nature is not necessary to secure the aim in question. We articulate two alternative ways of achieving the relevance of phenomenology to cognitive science. The first, which turns on a minimal notion of naturalism, leaves the classic scientific conception of nature intact. The second, which turns on a practice-based analysis of collaboration between phenomenology and cognitive science, leaves it open which concept of nature one should adopt. As we show, each of the proposals on the table (Gallagher's own and our two alternatives) comes at a cost. Which of the three proposals is the more attractive will depend on which cost one wants to pay.

### **Keywords**

cognitive science, naturalism, nature, phenomenology, reductionism

## 1. Introduction

Phenomenology, as it will concern us here, might reasonably be depicted as a philosophical enterprise that, starting with the disciplined first-person examination of human sense-making experience, aims to reveal the a priori conditions of the possibility of such experience. In the wake of the contributions made by influential phenomenologists such as Heidegger, these conditions of possibility are held to be not only *transcendental* in character, in that they are *presupposed by particular human experiences*, but also *historical*, in that they *do not stand outside of human socio-cultural history*. In engaging with phenomenology so conceived, one would certainly set off on the wrong foot if one thought of the phenomenologist as doing no more than reporting her first-person experiences simply as they strike her. Indeed, the received view in phenomenology is that the structures that are the targets of phenomenological investigation cannot routinely be read off from the surface of ordinary experience, precisely because they are concealed from any naïve or untrained inward glance. As Heidegger puts it, ‘the entities which we encounter in concern are proximally hidden’ (Heidegger 1962: 96). Thus, and to continue in this Heideggerian register, the deep sense-making structure of everyday experience is revealed, through the phenomenological analysis performed in *Being and Time*, to be the existential temporality of thrownness, projection and falling. Precisely what these terms mean is not important for the point at hand. What matters is that, *whatever they mean*, the deep structure that they describe, a structure that is a transcendental yet historically embedded condition of possibility of the distinctive kind of experience that human beings enjoy, isn’t readily available to the human subject on the surface of her ordinary experience. Some philosophical digging is required to expose it.

It seems clear enough that phenomenology aims to say something about the human mind. It does so by saying something about the underlying conditions for the sense-making experiences that populate such a mind. So, in the absence of any compelling argument that phenomenologists characteristically use psychological terms in some unique way that is entirely incommensurable with how those terms are deployed elsewhere, it seems that the concerns of phenomenology must overlap with, or at least be in some sort of interesting relationship with, the concerns of other disciplines in the vicinity of mind, and one of those disciplines is cognitive science. Indeed, given the remit of phenomenology as specified above, one might be tempted by the thought that the results of phenomenological analysis must be relevant to cognitive science, in the sense of being apt to attract the positive interest and active collaboration of the empirically minded scientist. It is largely because of this sort of thought that, recently, there has been a burgeoning research industry in what is sometimes called *phenomenological cognitive science*, examples of which are described in Shaun Gallagher’s target paper, ‘Rethinking Nature: Phenomenology and a Non-Reductionist Cognitive Science’, and in the text below. Still, the idea that phenomenology is relevant to cognitive science has also met with significant resistance, from parties on both the cognitive-scientific side and the phenomenological side of the proposed interface, and it is this resistance that Gallagher aims to overcome in his characteristically incisive and timely treatment. Gallagher identifies the common factor in both resistance narratives to be scientific reductionism and its entwinement with what he dubs the ‘classic scientific conception of nature’. Targeting this entwinement, he argues that the relevance of phenomenology to cognitive science may be secured if we rethink the very concept of

nature, in a manner already present in some contemporary enactive phenomenological approaches to cognitive science.

Following a brief summary of the main points of Gallagher's argument, we shall argue that the rethinking of nature that Gallagher himself recommends is in truth not necessary to secure the relevance of phenomenology to cognitive science. Indeed, we shall articulate not one but two alternative ways of achieving that aim, the first of which leaves the classic scientific conception of nature intact, the second of which leaves it entirely open which concept of nature one should adopt. We note, however, that each of the proposals on the table (Gallagher's own and our two alternatives) comes at a cost, assuming, that is, that one considers the loss of the classic scientific conception of nature to be a cost (more on this later). Which of the three proposals is the more attractive will depend on which cost one wants to pay.

## **2. The Case for Rethinking Nature**

Gallagher's case rests on his understanding of the relationship between scientific reductionism and a particular concept of nature. This relationship plays into two routine arguments against the claim that phenomenology is relevant to cognitive science, one of which comes from the side of science, the other from the side of phenomenology. From the side of science, some cognitive scientists (and their philosophical fans) hold that phenomenology is reducible to cognitive science, with cognitive science represented paradigmatically in the modern context by cognitive neuroscience.<sup>1</sup> What this means, so the argument might go, is that phenomenological facts may be explained 'without significant remainder' (5<sup>2</sup>) by cognitive neuroscience, leaving phenomenology with no important explanatory work to do. From the side of phenomenology, many phenomenologists hold that phenomenology cannot be naturalized (made continuous with cognitive science), since that would involve the detranscendentalization of phenomenology, an outcome that would strip phenomenology of its essential character.<sup>3</sup>

For Gallagher, both of the highlighted paths of resistance assume that there is a tight link between scientific reductionism and naturalism. As he puts it, '[f]or something to count as natural, it should fit into this kind of reductionist program' (5). More specifically, reduction is held to be sufficient for naturalization, which means that if phenomenology is reduced to, say, cognitive neuroscience, then phenomenology is thereby naturalized. And reduction is held to be necessary for naturalization, which means that if phenomenology is not reducible to cognitive neuroscience (or any other natural science), then phenomenology cannot be naturalized. With scientific reductionism placed at the heart of things in this way, Gallagher is able to reveal why, in his view, resistance to the idea that phenomenology is relevant to

---

<sup>1</sup> For example, some theorists first identify consciousness with the so-called global workspace (roughly, a domain-general working memory system that makes its contents available to a large number of other psychological systems) and then proceed to identify the global workspace with some fixed or dynamic neural architecture (e.g., Baars 1988).

<sup>2</sup> Unless otherwise indicated, all page numbers refer to the target paper by Gallagher.

<sup>3</sup> For an argument of this kind, see (Pollard 2016), as discussed in both the target paper by Gallagher and later in this response.

cognitive science depends on what he calls ‘the classic scientific conception of nature’. It is because scientific reductionism depends on that very conception. To explain: it is a commitment of scientific reductionism, and thus of any naturalism in its vicinity, that the only kinds of entities that ultimately exist are the kinds of entities recognized by the natural sciences, where the natural sciences include cognitive neuroscience. So what is the essential characteristic of entities as recognized by the natural sciences? It is that such entities meet a criterion of objectivity, where objectivity indicates a description of a *reality that exists independently of any human observer or human subjectivity*. This is the classic scientific conception of nature, a nature from which subjectivity (the home ground of phenomenology) has been entirely expelled. If this is right, then resistance to the relevance of phenomenology to cognitive science is entangled with the endorsement of the scientific conception of nature. Reject the latter, and that resistance would lose its force. And that, in a nutshell, is Gallagher’s strategy. In more detail, and expressed in a more positive register, the idea is this: by identifying a conception of nature that is not the classic scientific conception, and on the perfectly reasonable grounds that what ‘one means by naturalization directly depends on what one means by nature’ (11), Gallagher disentangles naturalism from scientific reductionism and thereby provides the basis for a non-reductive (and yet naturalistic) cognitive science that may receive productive and systematic input from phenomenology.

But where is this alternative conception of nature to be found? And what are its properties, such that it supports the relevance of phenomenology to cognitive science? Gallagher’s principal answer to the first of these questions is enactivist<sup>4</sup> phenomenological approaches in cognitive science. His answer to the second is that nature, as revealed by such enactivist approaches, irreducibly includes subjectivity, in that it is ‘relational, situational, involving/including... agents who perceive and respond to affordances in the modal attitude of the ‘I can’’ (11). And again: ‘This relational nature, irreducible to either brain or object, is the nature that science needs to explain. This concept of nature goes together with the idea that the phenomena to be explained are irreducible’ (7). The effect of this is that cognitive science should no longer idealize away from the subjectivity (the transcendental-historical conditioning of the experimenter, the experimental setting, and the experimental subject) that is characteristic of its phenomena.

As just one example (among several) that Gallagher gives of an irreducible relational structure that figures in enactivist phenomenological explanations in cognitive science and should be counted part of the basic furniture of nature, consider *affordances*. Affordances, as famously introduced into psychology by Gibson (1979), are perceptual elements constituted by the possibilities that an environment offers an animal for action and interaction. They are relational structures that encompass both subject and object without being reducible to either because, in order to specify a possibility of action or interaction an affordance must, as Gibson once put it, ‘point both ways’. A chair offers a human being (but not a shark) the possibility of sitting, and will (typically) be perceived by a human being as

---

<sup>4</sup> Generically, a position is enactivist if it pursues some version of the claim that cognition unfolds (is enacted) in looping interactions between an active organism and its environment. Different varieties of the view (e.g., Varela et al. 1991; Noë 1994; Hutto and Myin 2013) develop this idea in different ways.

such. A small electrical field produced by certain animals offers a shark (but not a human being – sharks have small electricity-sensitive pores located near their nostrils) the possibility of eating when in deep and murky water, and any such field will be perceived as such. According to Gallagher, if nature is defined not by a subjectivity-independent physical reality, but by relational, subjectivity-encompassing structures such as affordances, then the relevance of phenomenology to cognitive science is assured, since studying the human mind in such a world ‘requires a multidisciplinary approach that necessarily discounts every single discipline for the sake of the many; where neither neuroscience, nor psychology, nor phenomenology, nor anthropology, nor economics, nor any one of the cognitive arts and sciences gets the final say’ (12).

How should one respond to Gallagher’s proposal to rethink nature? In our view, the loss of the classic scientific conception of nature is a cost that Gallagher pays, in order to secure the relevance of phenomenology to cognitive science. In truth, it is not at all obvious that Gallagher himself sees this as a cost. For example, his account of the experimental context of science, and of the psychological, behavioural and social sciences in particular, where he stresses the inclusion of the observer and the subject in the phenomena and structures of science, suggests that he has independent reasons for judging the classic scientific conception of nature to be an inadequate basis for cognitive science, and perhaps for science in general. Nevertheless, and despite persistent criticisms, it remains plausible that the epistemic authority and integrity of science in society at large depend on the idea that its reasoning is objective (see e.g., Reiss and Sprenger 2017). There seems little doubt that the classic scientific conception of nature (of nature as existing independently of any human subjectivity) is a potential building block for that objectivity, a building block that one might not want to throw away too quickly. Or, at least, in the absence of any compelling alternative account of what makes science distinctive and trustworthy, one might want to leave it open that we might still appeal to that conception of nature. Against this background, we shall now develop two alternative mechanisms for achieving the relevance of phenomenology to cognitive science, neither of which requires us to rethink nature.

### 3. Leaving Nature Alone

Our first alternative proposal aims to retain the classic scientific conception of nature, but to achieve the naturalization of phenomenology without requiring reduction (although it allows for reduction in particular cases). In this way, it delivers the relevance of phenomenology to cognitive science. It is a modulation of a strategy recommended and explored by one of us in previous publications (Wheeler 2013, 2014).

The animating principle of naturalism is that philosophy should be *continuous with* empirical science. So the naturalist about cognition (mind, experience, etc.) thinks that the philosophical understanding of cognition – including the phenomenological analysis of experience – should be continuous with cognitive (neuro)science. So what does continuity amount to here? On the picture of things that, as we have seen, Gallagher urges us to reject, continuity (and thus naturalism) is cashed out as something like inter-theoretic reduction, but that is not the only option. Moreover, it is not the only option that is consistent with the classic scientific conception of nature. What is true is that the continuity of philosophy with science, as it figures in naturalism, demands more than the mere consistency of philosophy

with science. It demands that there is some sense in which it's science, and not philosophy, that calls the shots. This idea needs to be handled with care. On the one hand, since even the most evangelical naturalist should not expect good philosophy to concede to bad science, it cannot be the case that philosophy should withdraw its claims as soon as some random scientist complains. On the other hand, the naturalist shouldn't fall into the trap of requiring merely that philosophy is under an obligation to withdraw its claims only in the face of a conflict with some final science, given that we have no idea if the notion of a final science makes any sense or, even if it does, how we would know if we had discovered it. What is needed, it seems, is a robust principle of conflict resolution that applies to clashes between science and philosophy that are happening right now. Here's a proposal for such a principle: if and when there is a genuine clash between philosophy and some eminently well-supported (by the data) empirical science, then there is an obligation on the philosopher to revisit her claims, with a view to withdrawal or revision. The envisaged clash, on its own anyway, places no such obligation on the scientist.

It is important to realize that this is a claim about what the scientist or the philosopher is under an *obligation to do, qua* scientist or *qua* philosopher, as a consequence of a commitment to naturalism. It is not a claim about what some particular scientist or philosopher *will, in fact, do*. Factors such as the character traits and the socio-political inclinations of the individual concerned, in the context of various peer influences and wider societal and institutional pressures, may well mean that the actual behaviour that we observe departs from that recommended by our principle of conflict resolution. Moreover, it may well be that real-world scientists often make implicit or explicit philosophical claims. If the scientist who does so is a philosophical naturalist, and if her philosophical claims genuinely conflict with her scientific claims, then, assuming that the latter are empirically well-supported, she is under an obligation, as a result of her naturalism, to re-examine her philosophical claims, but not her scientific ones. Of course, what she will in fact do is hard to predict, but that's not the goal of the analysis. Another way to put this point is to say that naturalism specifies a normative relation between philosophy and science, rather than a description of the actual behaviour of people who happen to be scientists or philosophers or some mixture of the two.

With that clarification in place, does our openly minimalist form of naturalism give us what's needed? On the plus side, it rethinks naturalism without rethinking nature, so it preserves the classic scientific conception of nature. And although the reduction of philosophically articulated psychological phenomena to states and processes identified according to the classic scientific conception of nature would trivially guarantee the continuity of philosophy with science as required by minimal naturalism, the position has no global reductionist ambitions. This means that, in principle, there is certainly conceptual room for phenomenology to contribute to cognitive science by, for example, accurately describing experiential structures that are not apt for reduction. In practice, however, that room may be severely limited. To see this, consider how one might respond to the following salutary warning from Fox Keller (1998: 406, drawing on Martin 1991). (Although this example concerns biology rather than cognitive science, any lessons will surely transfer.)

Conventionally, the sperm cell has been depicted as 'active', 'forceful', and 'self-propelled', qualities that enable it to 'burrow through the egg coat' and

penetrate' the egg, to which it 'delivers' its genes and 'activate[s] the developmental program'. By contrast, the egg cell 'is transported', 'swept', or merely 'drifts' along the fallopian tube until it is 'assaulted', 'penetrated', and fertilized by the sperm ([Martin 1991] pp.489-90) The technical details that elaborate this picture have, until the last few years, been remarkably consistent: they provide chemical and mechanical accounts for the motility of the sperm, their adhesion to the cell membrane, and their ability to effect membrane fusion. The activity of the egg, assumed nonexistent, requires no mechanism.

Strictly speaking, this passage may not be an exercise in phenomenology, but it is a compelling articulation and illumination of the historically and culturally conditioned character of science, so it is in the right ballpark. It is also a cogent critique of the science that has been performed on the basis of those historicized transcendental conditions. So, what should happen next? Strikingly, if we follow the tenets of minimal naturalism, the scientist is under no obligation to critically revisit his account of things. Of course, as suggested earlier, he may have certain enlightened political beliefs that, as things turn out, cause him to worry about the gendered language of the science in question, once it is pointed out to him. And that very concern may lead him to think critically about that science. *From the perspective of minimal naturalism*, however, he is under no obligation to do any of that, because, *qua* scientist, he has empirical data that enjoy collective support from a community of scientific experts and which indicate that the existing science is in perfectly good shape. The key point is this: neither a conservative outcome here, nor a reformist one that happens only because our scientist happens to be of a particular political persuasion, is destined to satisfy the phenomenologist who, in the spirit of having her philosophical work counted as 'relevant to science', might reasonably expect her critique to carry rather more weight.

What this demonstrates is that our minimal naturalism maintains an asymmetry between the authority of phenomenology and the authority of science. In other words, even though we have specified a form of naturalism that, while preserving the classic scientific conception of nature, has been 'watered down' as far as possible (without losing the right to be called naturalism), there nevertheless remains in place what Stendera (2015: 105) calls 'a power imbalance that favours the scientific perspective over phenomenology' (see also Wheeler 2014). So although the relevance of phenomenology to cognitive science has been delivered, it has been delivered in a restricted form that is unlikely to satisfy the phenomenologist.

#### **4. Leaving Nature Out of It**

According to our second alternative proposal, there are perfectly coherent non-reductive routes of productive influence from phenomenology to cognitive science, and indeed from cognitive science to phenomenology, that may be (in fact, routinely are) achieved, without any attention at all being paid to the notion of nature – classic scientific conception or otherwise. From this perspective, whether the scientific conception of nature should be retained or discarded is an issue that is typically unconnected to the relevance of phenomenology to cognitive science.

To bring this alternative into view, we can begin with the resistance to the relevance of phenomenology to cognitive science that comes from phenomenology itself, a resistance that Gallagher addresses as it is expressed by Pollard (2016). The main consideration in the frame here is the claim that, in order for phenomenology to be relevant to cognitive science in the way envisaged (that is, to be a collaborator with science), it risks being detranscendentalized. But this detranscendentalization – this collapse into ‘mere’ phenomenological psychology, a practice that directs phenomenological findings and concepts towards scientific research – would divest phenomenology of something essential to its nature and imply the misinterpretation of phenomenological theses, and therefore should be resisted. Thus Pollard focuses on work in phenomenological enactivism that, he argues, collapses phenomenological notions into scientific ones (e.g., it collapses Merleau-Ponty’s concept of the intentional arc into the scientific idea of the feedback loop). Intriguingly, there is a sense in which Gallagher is willing to bite the bullet here and accept that, through its entanglement with cognitive science, phenomenology may possibly be transformed into a non-transcendental discipline. However, he argues that a detranscendentalized phenomenology is not *thereby* one that is ‘simply appropriated by a natural science that remains tied to the classic scientific conception of nature’ (10). So, both phenomenology and cognitive science may be transformed by the intersection of their orbits, and, as highlighted earlier, part of the transformation undergone by cognitive science will be the introduction of a subjectively laden conception of nature in which intrinsically relational structures such as affordances and the intentional arc are considered to be irreducible. It’s that rethinking of nature, with its recognition of the impossibility of reducing subjectivity, and not the transcendental character of phenomenology, that secures a distinctive and robust role for the phenomenologist in the collaboration.

In our view, there is a different interpretation of the collaboration between phenomenology and cognitive science, one which has the advantages (a) of incorporating the transcendental character of the former, and (b) of not demanding, while nevertheless allowing for, Gallagher’s rethinking of nature. We shall begin by arguing that there are cases of collaboration that are discussed by Gallagher himself, the success of which is not explained by the inclusion of subjectivity into the realm of the natural (even if that inclusion is independently warranted), but rather by the fact that they share a practical concern, a concern that is motivated by the needs and requirements of scientific *practice*.

For example, Dreyfus (2004) sets out to show that nowadays there are models of the brain that are compatible with Merleau-Ponty’s account of skillful learning. If Merleau-Ponty’s phenomenology is indeed compatible with extant models of the brain, it will be possible for scientific research to be shaped by this particular phenomenological conceptual framework. In this case, the collaborative contribution of phenomenology will consist largely in the clarification and amplification of the conceptual underpinnings of the models in question and their subsequent application. However, if the resulting empirical research were not to be progressive, there would be no reason to maintain that particular conceptual framework. So, if it is agreed that the issue is in this way ultimately empirical (a point which Dreyfus himself seems to acknowledge – see Dreyfus 2004: 144), the acceptance or rejection of the Merleau-Pontian conceptual framework, in the context of the target collaboration, will depend upon its usefulness for generating scientific explanations and predictions. Thus its



acceptance as a framework is essentially a practical matter, determined by what it means to do scientific research and what is expected as an outcome of this activity.

Here is a second example that Gallagher himself discusses. Varela et al. (1991) claim at the outset that their aim is pragmatic. They do not intend to build a 'grand, unified theory (...) of the mind-body relation' (1991: xviii), but rather to complement cognitive-scientific research with a disciplined examination of consciousness. The goal is to produce a description of experience that is familiar to us from everyday life and also to other traditions besides Western thought, but which also maintains the link between our everyday experience and our scientific explanations, and, importantly, recognizes the dependence of scientific explanations on the way scientists themselves experience the world (Varela et al. 1991: 12-13). The demand for another account of experience here, and thus for a collaboration with phenomenology, comes fundamentally from a dissatisfaction with traditional scientific approaches to cognition which, the authors argue, fail in practice to account for intelligent tasks that do not occur within a well-circumscribed world, and relatedly for the world as experienced, a world that does not have 'predefined boundaries' (Varela et al. 1991: 147-148).

Of course, the practical and the theoretical aspects of such phenomenological approaches in cognitive science need not be incompatible. Some of the researchers concerned may well be thinking in terms of the application of non-reductive concepts regarding subjective experience (e.g., affordance, intentional arc), and yet still accept practical constraints that dictate how far they might go with such suppositions. The bottom line is this, however: if these approaches were to result in bad science, they would be rejected as conceptual frameworks for scientific research, and that particular collaboration between phenomenology and cognitive science would be over.

Gallagher is right to indicate that the cases above (and others that he discusses) share a conceptual concern, that of paying proper attention to the inclusion of experience within scientific and philosophical accounts of the mind. However, one might still wonder exactly how a shared interest in the inclusion of experience becomes the theoretical commitment to a new notion of nature. Indeed, it is even arguable whether every example of scientific research is theoretically framed. For instance, Darden and Maull (1977) characterize scientific research within what they call fields, organizing structures that do not always include laws or theories.<sup>5</sup> That said, we do not need to claim anything as strong as that scientific research does not rest on theoretical principles. All we need is the claim that a theoretical commitment to some or other notion of nature is not the kind of theoretical principle that is necessarily at play in scientific research.

If we look beyond the cases discussed in Gallagher's target paper, there are many examples of successful collaboration between phenomenology and cognitive science that are readily

---

<sup>5</sup> Darden and Maull (1977: 44) define a field as an area of science that consists in: 'a central problem, a domain consisting of items taken to be facts related to that problem, general explanatory factors and goals providing expectations as to how the problem is to be solved, techniques and methods, and, sometimes, but not always, concepts, laws and theories which are related to the problem and which attempt to realize the explanatory goals'.

explained by the details of scientific practice, rather than any shared rethinking of nature. Indeed, Gallagher's own work provides one such example. Gallagher and Brøsted Sørensen (2006: 130) claim that the question of the contribution of phenomenology to cognitive science is: 'not about phenomenological methods, or phenomenology per se, but about the phenomenological procedures that would allow phenomenology to be used in the behavioural and cognitive neurosciences... [Phenomenology] is, in effect, a way of introducing methodological control into the description of the phenomena (perception, memory, proprioception, action, etc.) that cognitive scientists want to explain.' Here, then, phenomenology is useful in relation to a specific set of scientific practices: to use subjects' reports of their own experience, as part of cognitive-scientific research, it is important to train the subjects of study to be sensitive observers of their own experiences, so that, in consequence, the relevant information may be obtained in an orderly fashion.

As a final example – one which demonstrates that our practice-driven alternative has the advantage of accounting not only for phenomenological enactivism, but also for other cases of collaboration – consider Agre and Chapman's *Pengi* (Agre and Chapman 1987). The goal of this research was to develop a computer program that would avoid certain obstacles confronted by systems developed within the cognitivist and connectionist traditions. According to Agre and Chapman, both of these orthodox approaches assume that action is secondary with respect to cognition and so should be explained utilizing machinery that has already been used to explain cognition (Agre and Chapman 1987: 268). In developing an alternative, action-led approach, Agre was inspired by Heideggerian phenomenology (in particular, Heidegger's account of readiness-to-hand – see Heidegger 1962). Nonetheless, he characterizes the contribution of phenomenology as a kind of practical prop. As he puts it: '[b]etter descriptions of everyday life do not disprove technical ideas, but they do motivate different intuitions and they also help evaluate the appeals to everyday intuition that are found throughout AI research' (Agre 1997: 9). As far as we can tell, at no point in this collaboration does a rethinking of nature so as to include irreducible subjectivity, or indeed any consideration of the notion of nature, play any role in grounding the relevance of phenomenology to cognitive science. This presents Gallagher with a dilemma. He might concede that this particular collaboration does not involve a rethinking of nature, but nevertheless maintain that those based on enactivist phenomenology do, in which case he would also have to accept that his proposed rethinking of nature is not necessary for phenomenology to be relevant to cognitive science. Or he might argue that although cases such as that of *Pengi* do not explicitly involve a rethinking of nature, they do so implicitly, in which case the burden of proof is on Gallagher to show us how.

Up to this point, we have argued that fertile collaborations between phenomenology and cognitive science are, pace Gallagher, not necessarily grounded on any particular notion of nature. Rather, they are regulated by the demands of successful scientific practice. At this point, however, Pollard's detranscendentalization worry is snapping at our heels. Not only that, but the framing of things in terms of scientific practice and its aims might imply that phenomenology is not only fully detranscendentalized, and thus turned into phenomenological psychology, but is entirely subsumed by scientific practice and its demands. In truth, however, neither of these outcomes is mandatory, or so we will argue.

The term 'phenomenology' names a philosophical tradition and, more importantly, it names a way of doing philosophy. If there is a collaboration between phenomenology and cognitive science, it must be understood in line with the defining features of phenomenology as a philosophical endeavour. To a reasonable first approximation, a philosophical analysis is an instance of phenomenological research when it has (versions of) the following two features:

i. Thematical Feature

As mentioned earlier, phenomenology is concerned with the conditions of possibility of intelligibility (i.e., sense making). It is in this sense that phenomenology is a transcendental enterprise, although the precise meanings of the terms 'transcendence' and 'transcendental' in each phenomenological project require further specification. Phenomenological projects set out to give an account of consciousness or of existence, and what is characteristic of both is that they name the phenomenon of openness to the world: our thoughts and actions are directed towards the world. Giving an account of our meaningful interactions with the world requires an account of the structure of this directedness. At this point we can claim that phenomenology is concerned with scientific research in at least the sense that science constitutes a meaningful interaction with the world. Phenomenology exposes the conditions of possibility of scientific practice as something that is given within a determinate context and that is traversed by socio-historical conditions.

ii. Methodological Feature

To account for the conditions of possibility of intelligibility, phenomenology requires the philosopher to take a specific stance. This stance is defined by a breaking out from the natural attitude into the transcendental attitude, where the latter brackets the contingent occurrent aspects of the objects that constitute the realm of the natural, in order to obtain the conditions of their givenness. But even though phenomenology exhibits a critical stance towards the natural attitude (in that it is not naïve in relation to the natural attitude's objects and theoretical presuppositions), its point of departure remains that very attitude. Because of this, phenomenology requires an adequate description of the natural attitude from which to begin its analysis.

So far, so good, but what exactly is the natural attitude? In answering this question, we are about to say something controversial. As we understand it, the natural attitude encompasses all our pre-ontological (prior to phenomenological analysis) interactions with the world, and, as such, it includes both the attitude of everyday life *and the attitude of the scientist*. Given this, cognitive science itself emerges as a component of the natural attitude, the attitude with which phenomenological theorizing necessarily always begins. This is a controversial position because it conflicts with 'classical' phenomenology. For example, Husserl (1989: 174) not only distinguishes between the natural and the *naturalistic* attitude, with the former naming our everyday experience and the latter the attitude of the scientist, but also claims that these are opposing attitudes, in that we do not experience the natural objects that are studied by the scientist. And Heidegger, despite engaging in discussions with science (Heidegger 1995, 2001), would not accept that phenomenology departs from scientific studies, but only from an analysis of our everyday experience. Notice, however,

that our alternative proposal does not recommend an uncritical acceptance of what science tells us (a kind of unreconstructed naturalistic attitude), but only that science provides some of the necessary starting conditions for phenomenological analysis.<sup>6</sup> This is in line with Merleau-Ponty's claim that while a 'science without philosophy would literally not know what it was talking about, [a] philosophy without methodical exploration of phenomena [e.g., without science] would end up with nothing but formal truths, which is to say, errors' (Merleau-Ponty 1964: 97). However, the envisaged relationship between phenomenology and cognitive science makes sense only if we recognize the transcendental dimension of the former. So the relevance of phenomenology to cognitive science, as we have characterized it in the context of scientific practice, does not result in a detranscendentalization of phenomenology, but instead in an affirmation of its transcendental aspect.

What this suggests is that collaborations between phenomenology and cognitive science are not all of one kind. A specific collaborative effort could be shaped either as a phenomenological task or as a scientific task. As practices, phenomenology and science have different goals, questions, methodologies, and techniques. Any collaboration will be regulated by the practice within which it is framed, rather than by the ultimate authority of one discipline over the other. This means that although there is always a power imbalance in force, just who holds power will depend on the kind of task that is being carried out. This conclusion risks a Stendera-like objection (see above) that any power imbalance is in tension with the possibility of genuine collaboration. However, without any regulation over what determines a practice or a task, it would be impossible to perform it. This is not the claim that it is always the scientist, or indeed always the phenomenologist, who calls the shots, but the idea that there is a symmetrical asymmetry between the two. That is, while neither science nor phenomenology enjoys global authority over the other (hence a symmetry), the regulating principles of some particular collaboration, as determined by the research task and goals in force, will impose constraints that may give one partner local authority over the other (hence an asymmetry).

So, does our foregrounding of scientific and phenomenological practice give us what's needed? On the positive side, the resulting proposal does not in itself require the rethinking of nature, so, in principle, it is consistent with the classic scientific conception of nature. Indeed, if, in some collaboration between phenomenology and cognitive science, the metaphysical question of how to conceptualize nature plays no role in the unfolding of the relevant practices (see, e.g., the case of *Pengi*), then it plays no role in the motivation for, or in the regulation of, that collaboration. As a further bonus, the proposal delivers the relevance of phenomenology to cognitive science while preserving the transcendental character of the former, so any worries from the side of phenomenology that turn on the risk of detranscendentalization are defused. On the negative side, this way of warding off the spectre of detranscendentalization involves the removal of even the arguably modest naturalistic demand that genuine conflicts between philosophy and science place a global obligation on the philosopher, but not on the scientist, to revisit her claims. This means that

---

<sup>6</sup> As an example of research with this profile, consider an analysis by De Preester (2008) in which a consideration of empirical scientific research into mirror neurons is used explicitly to drive the phenomenological claim that Merleau-Ponty's account of self-other understanding as world-mediated presupposes a Husserlian notion of pairing or bodily similarity.

the position on offer no longer counts as a species of even the minimal kind of naturalism that we explored in our first alternative proposal. To the extent that naturalism is a goal – and some might hold that any philosophy that truly wants to hang out with cognitive science had better have naturalist credentials – this is, without doubt, a cost to be paid.

## 5. Concluding Remarks

The advent of research at the interface between phenomenology and cognitive science is an exciting intellectual development. Nevertheless, such work faces a good deal of in-principle resistance from both sides of that interface. Because this resistance exists, Gallagher's articulation of a philosophical position that would mandate the kind of research in question is much-needed. However, as we have argued, Gallagher's distinctive proposal for a rethinking of nature is not the only potential source for such a mandate. Minimal naturalism and a practice-centred analysis of the phenomenology-science interface are competing options. Here we have not settled the issue of which of these three options should be selected, but we have made a start on the task of understanding their advantages and disadvantages.

## Acknowledgments

For valuable discussion of the ideas presented here, many thanks to an audience at the University of Stirling. For specific suggestions that helped us improve the final paper, we are indebted to Sonia Roca-Royes, Philip Ebert, Patrick Stokes and Jack Reynolds.

## References

- Agre, Philip E. 1997. *Computation and Human Experience*, New York: Cambridge University Press.
- Agre, Philip E., and Chapman, David 1987. 'Pengi: An Implementation of a Theory of Activity', *Proceedings of the Sixth National Conference on Artificial Intelligence*: 268–272.
- Baars, Bernard J. 1988, *A Cognitive Theory of Consciousness*, Cambridge, UK: Cambridge University Press.
- Darden, Lindley and Maull, Nancy 1977. 'Interfield Theories', *Philosophy of Science* 44, 1: 43–64.
- De Preester, Helena 2008. 'From Ego to Alter Ego: Husserl, Merleau-Ponty and a Layered Approach to Intersubjectivity', *Phenomenology and the Cognitive Sciences*, 7, 1: 133–142.
- Dreyfus, Hubert L. 2004. 'Merleau-Ponty and Recent Cognitive Science', in *The Cambridge Companion to Merleau-Ponty*, eds. Taylor Carman and Mark B. N. Hansen, Cambridge, UK: Cambridge University Press: 129–150.
- Fox Keller, Evelyn 1998. 'Gender and Science', in *The Philosophy of Biology*, eds. David L. Hull and Michael Ruse, Oxford: Oxford University Press: 398–413.
- Gallagher, Shaun and Brøsted Sørensen, Jesper 2006. 'Experimenting with phenomenology', *Consciousness and Cognition*, 15, 1: 119–134.
- Gibson James J. 1979. *The ecological approach to visual perception*, Boston: Houghton Mifflin.
- Heidegger, Martin 1927/1962. *Being and Time*, trans. John Macquarrie and Edward Robinson, Oxford: Basil Blackwell.

- Heidegger, Martin 1995. *The Fundamental Concepts of Metaphysics. World, Finitude, Solitude*, trans. William McNeill and Nicholas Walker, Bloomington and Indianapolis: Indiana University Press.
- Heidegger, Martin 2001. *Zollikon Seminars. Protocols - Conversations - Letters*, trans Franz Mayr and Richard Askav, Evanston: Northwestern University Press.
- Husserl, Edmund 1989. *Ideas Pertaining to a Pure Phenomenology and to a Phenomenological Philosophy. Second Book. Studies in the Phenomenology of Constitution*, trans. Richard Rojcewicz and André Schuwer, Dordrecht, Boston, and London: Kluwer Academic Publishers.
- Hutto, Daniel D. and Myin, Erik 2013. *Radicalizing Enactivism: Basic Minds without Content*, Cambridge, Mass.: The MIT Press.
- Martin, Emily 1991. 'The Egg and the Sperm: How Science has Constructed a Romance Based on Stereotypical Male-Female Roles', *Signs*, 9(2): 485–501.
- Merleau-Ponty, Maurice 1964. 'The Metaphysical in Man', in *Sense and Non-Sense*, Maurice Merleau-Ponty, Evanston: Northwestern University Press: 83–98.
- Noë Alva 2004. *Action in perception*, Cambridge, Mass.: The MIT Press.
- Pollard, Christopher 2016. 'Merleau-Ponty and Embodied Cognitive Science', *Discipline Filosofiche: Merleau-Ponty and the Natural Sciences*, 2: 67–90.
- Reiss, Julian and Sprenger, Jan 2017. 'Scientific Objectivity', *The Stanford Encyclopedia of Philosophy*, Summer 2017 Edition, ed. Edward N. Zalta, URL = <https://plato.stanford.edu/archives/sum2017/entries/scientific-objectivity/>.
- Stendera, Marilyn 2015. *Dasein's Temporal Enaction. Heideggerian Temporality in Dialogue with Contemporary Cognitive Science* (Unpublished PhD dissertation), University of Melbourne.
- Varela Francisco, Thompson Evan, and Rosch Eleanor 1991. *The Embodied Mind: Cognitive Science and Human Experience*, Cambridge: Mass: The MIT Press.
- Wheeler, Michael 2005. *Reconstructing the Cognitive World. The Next Step*, Cambridge, Mass. and London: The MIT Press.
- Wheeler, Michael 2013. 'Science Friction: Phenomenology, Naturalism and Cognitive Science', *Royal Institute of Philosophy Supplement*, 72: 135–67.
- Wheeler, Michael 2014 'The Rest is Science: What Does Phenomenology Tell Us About Cognition?' in *Subjectivity and the Social World*, eds. Tom Feldges, Josh N.W. Gray and Stephen Burwood, Cambridge: Cambridge Scholars Publishing: pp.23–38. Reprinted in *Phenomenology and Science*, eds. Jack Reynolds and Richard Sebold, Basingstoke: Palgrave Macmillan, 2016: 87–102.